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OCT 29 1930

IN THE

Supreme Court of the United States

OCTOBER TERM, 1930.

No. 4.

CONCRETE MIXING & CONVEYING COMPANY (a corporation), *Petitioner,*

vs.

R. C. STORRIE & COMPANY (a partnership), *Respondent.*

PETITIONER'S REPLY TO "DEFENDANT'S-RESPONDENT'S REPLY MEMORANDUM."

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PRESS OF BYRON S. ADAMS, WASHINGTON, D. C.

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At the conclusion of his oral argument in this case, Mr. Townsend, counsel for the Respondent, requested and was granted leave to file a "Defendant's-Respondent's Reply Memorandum," which was said by Mr. Townsend to be necessary in order to correct certain errors in the reply brief on behalf of the Petitioner filed at the time of the original argument in April, 1929. No copy of Mr. Townsend's Memorandum had been served or submitted to counsel for the Petitioner

in advance of the oral argument, wherefore the court granted us leave to reply to this Memorandum within four days.

This is our reply.

On pages 17 and 18 of our reply brief we contended that the defendant-respondent's demonstrations or tests of a tank corresponding more or less closely with that of the Smith patent No. 122,498 of 1872 were misleading and inconclusive because of the enormous quantity of water which was admixed with the solid ingredients of the concrete. We had understood the witnesses to say that in some of these tests the water content was two-thirds of the entire volume. Mr. Townsend contends on behalf of the respondents that when the tank was two-thirds filled with water no solid ingredients whatever were used. The demonstration amounted simply to showing that the clear water could be blown out of the tank by the application of air pressure. A re-reading of the rather ambiguous testimony shows that Mr. Townsend may be correct in this regard.

As pointed out by Mr. Townsend, the Smith patent describes a "concrete" so "liquid" or "fluid" that it will not stand in a pile or heap, but will "settle to a perfectly level surface," just like water. Smith described a mixture of one part cement, one part sand, and three parts coarse aggregate, to which water was added in an amount equal to three-fifths of the volume of these solids, and the defendant-respondent's expert, Mr. Wilkins, testified on page 448 of the Record that these were the proportions used in the demonstrations of the so-called Smith apparatus.

On page 9 of his brief, Mr. Townsend concludes some calculations showing this to be the equivalent of

14.3 gallons of water per cubic foot of concrete. Counsel for defendant-respondent attempted to support his argument by incorporating a page of some book in which the permissible quantity of water is shown to vary from five and one-half gallons to eight and one-quarter gallons per cubic foot, depending upon the strength and service required of the finished concrete, where "the space between the aggregate particles is completely filled with *cement paste.*" The "14.3 gallons of water per cubic foot of concrete," as employed in the defendant's demonstrations of the Smith tank is *about double* the eight and one-quarter gallons per cubic foot said by Mr. Townsend's "authority" to be the maximum and extreme permissible quantity of water under *any* conditions whatsoever.

Granting that we were in error in our ascription of two-thirds water, and that we should have said three-fifths water, the fact seems to remain that the tests of the Smith apparatus were made with "concrete" so diluted with water that it would flow like any liquid, but that it would be utterly useless for any of the purposes to which concrete is applied in building or constructional operations.

It would hardly seem necessary for Mr. Townsend to wait until after the close of the oral re-argument in this Court to inject an alleged bulletin of the Portland Cement Association into the Record, since he showed his familiarity with it and apparently referred to it (without offering it in evidence) in his Cross-Examination of the plaintiff's witness, Mr. Robinson, on page 573 of the Record.

Mr. Robinson testified relative to the permissible quantity of water as follows:

> "In mixed concrete 90 to 95 per cent, is solids and the balance water. When there is 90 per cent solids and 10 per cent water you have what I would consider a sloppy mixture. It is the medium (maximum) of sloppiness or wetness and (that) is permissible or feasible for satisfactory concrete construction."

And as there are 7½ gallons in a cubic foot, Smith's 1-1-3 mixture of 5 cu. ft. or 37½ gallons of solids should have not more than 3.75 gallons of water to make "satisfactory concrete construction." This is about *one quarter* of the water given in Mr. Townsend's belated and unverified calculation.

There was no refutation or attempt to refute this testimony.

Again, the mixture described in the Smith patent was one containing five parts of solids and three parts of water, *i. e.*, 37½ per cent water. This is *nearly four times* as much water as contained in the "sloppy mixture" described by Mr. Robinson as resulting from the use of the maximum permissible quantity of water, *i. e.*, 10 per cent.

All of the evidence forces the conclusion that air pressure could be made to force a column of liquid out of the Smith tank, but that "concrete" could be made to flow out of this tank only when it was given the characteristics of a liquid by the addition of much more than three times the maximum permissible quantity of water. The most that can be said of the defendant-respondent's demonstration of the Smith apparatus is that flowability—for a very short distance—was secured at the expense of usability.

The whole matter was quite pithily summarized in the defendant's testimony of R. C. Hackley, the en-

gineer who devised and operated the defendant's machine. Mr. Hackley testified:

"Q. Now, was the concrete which you say you discharged from that tank a week ago, was that such material as is described in this Smith patent where it says here, 'The composition is sufficiently liquid to settle to a perfectly level surface.' Was it of that character?

"A. Yes, it had settled pretty close to a level surface. Some of it would.

"Q. Well, this says 'To a perfectly level surface.'

"A. Well, I don't know whether you would call it perfectly level or not.

"Q. Well, I am asking you, of course, about the material that you used in this machine. Was that of this character which would settle to a perfectly level surface?

"A. No, that would not settle to a perfectly level surface without agitation.

"Q. It would not?

"A. No.

"Q. And it was for that reason that some of this material was left on the flat floor of this tank?

"A. Yes.

"Q. And was not discharged, was it?

"A. Yes sir.

"Q. Now, if you had used enough water in that composition so that it would have the characteristics described by Smith here—that is, being a composition sufficiently liquid to settle to a perfectly level surface, then none of that material would have been left in the bottom of that chamber?

"A. Yes, sir, some of it would have been left.

"Q. It would have?

"A. Yes.

"Q. Why would it have been left?

"A. Because the liquid part would be blown off and leave some of the dry portions in the corners.

"Q. That is, a little sediment would settle?

"A. If there was rock there some of the rock would stay in the corners.

"Q. But in the main, if the material was of a liquid consistency described in this Smith patent, then the bulk of it would go out except for some little settling?

"A. It would gradually collect in there.

"Q. Collect where?

"A. Collect in the corners.

"Q. Then do you claim the material which you did discharge from this flat bottom Smith tank—I suppose that had merely air pressure on top of it?

"A. Yes sir.

"Q. There was no second jet which by its velocity broke up or compacted the concrete material and carried it along through the duct either in slugs or otherwise, was there, in your demonstration of this Smith apparatus?

"A. No, there was not.

"Q. You relied merely on the air pressure supplied to the top of that tank to force the paint-like concrete out of the bottom, did you?

"A. To force the concrete out of the bottom, yes.

"Q. Now, of course, in the Hackley machines which you designed and which you put in use on this Skagit work and at Maloneys, did you say—

"A. (Interrupting.) Yes, sir.

"Q. (Continuing.) —I suppose you have done that elsewhere, also?

"A. Yes, sir.

"Q. You, of course, are not satisfied with and you do not rely upon air pressure on the top of the concrete only, as in this Smith box or tank, do you?

"A. No, sir.

"Q. You have second jets (a secondary jet) which blows a stream of air into the chamber just in advance of the exhaust duct and directed toward that duct, do you not?

"A. Yes, sir.

"Q. Now, of course, there is a reason why you do that, isn't there?

"A. Yes, sir.

"Q. One of the reasons is that you get a different and a better action, don't you?

"A. You start the—

"Q. (Interrupting.) Well, I am asking you. This is cross-examination. Answer either yes or no.

"A. Yes." (R. pp. 433-6)

To us it really does not seem important whether liquid concrete could be made to flow out of the duct at the bottom of Smith's tank by the application of air pressure upon the upper surface of the liquid. It does not seem important to us to determine just what degree of liquidity was required in order to cause a single batch of so-called concrete to flow out through the duct of the defendant-respondent's Smith demonstration apparatus. Whatever happened, or whatever could be made to happen, was not due to the utilization of the McMichael invention. Every one of the claims in suit of the McMichael patent calls in one way or another for the velocity jet located *just at the point where the concrete passes from the chamber into the conduit* so as to break off sub-masses of the compacted concrete and direct them into and through the conduit. The Smith apparatus contained nothing of this kind. For obvious reasons, Hackley was unwilling in his practical and commercial work to employ only the static air pressure of the Smith ap-

paratus, but found it necessary to employ also the *second velocity jet* of the McMichael patent.

We suspect that the purpose of counsel for the defendant-respondent in filing his reply memorandum was not so much to correct our possible error in speaking of two-thirds water instead of three-fifths water in connection with the defendant's demonstration of the Smith apparatus, as to present a *new* theory or contention relative to the mode of operation of the Smith apparatus. *It is to be noted that this memorandum was printed in San Francisco, but was withheld until the argument was closed.*

Nowhere in the record in any of the three suits upon this McMichael patent, nowhere in any earlier brief, and nowhere in the former argument before this court has anyone ever found or attempted to find a velocity nozzle in the Smith apparatus.

But upon his oral re-argument and in his "Reply Memorandum" counsel for the defendant-respondent for the first time suggests that the pipe by which compressed air is supplied to the upper part of the Smith tank acts also as a velocity nozzle to dislodge sub-masses of concrete at the bottom of the chamber and to direct them into the exit conduit. The Smith patents certainly *do not even hint at such* a function or utility. *The idea is not only the gratuitous fancy of counsel for the defendant-respondent, but it seems to us preposterous.* The entire description of the apparatus as it appears in the Smith patent is as follows:

> "When it is necessary to force the liquid up hill, or to convey it quickly or in larger quantities than usual, or through long pipes, or to press it in the mold and expel the air therein, in

> which it might begin to stiffen before reaching its destination, I employ a forcing apparatus to propel it through the pipes, the same consisting, preferably, of a tight chamber, F, capable of resisting great pressure, into which the liquid flows from the mixer, and a pipe, f, by which steam or compressed air can be introduced into the chamber F, *upon the liquid, to force the latter, by pressure,* into the pipe D. *Any other species of forcing apparatus may, however, be substituted, if preferred.*" (R. p. 487.)

Smith's suggestion that "any other species of forcing apparatus" (such for example, as a pump cylinder and piston), might be substituted for the application of air pressure, *negatives any idea of a velocity nozzle.* The entire description of the use of compressed air is confined to its utilization as a means of creating *mere static pressure.* All that Smith had in mind could have been accomplished by an air or steam pipe connected with the upper part of his chamber, F, *at any point and in any direction.*

We do not believe that the air pipe f of the Smith apparatus did anything more than to develop mere static pressure in the upper part of Smith's tank. If it did, it was the purest kind of an accident which meant nothing to Smith and which taught nothing to anybody prior to McMichael, *or in fact to anyone down to the closing hour of the re-argument of this suit.* It is impossible for us to understand, and counsel for the respondent has failed to suggest, how air pressure applied over the top of the liquid concrete in Smith's chamber can result in the delivery of a high velocity jet of air into the compacted con-

crete just at the point where it would emerge from the chamber into the conduit.

But even if one were to accept counsel's fancy in this regard, he would still be left with an apparatus devoid of *the* velocity jet of the McMichael invention. *He would be left with an apparatus which no one has ever been able to use in actual practice or in the commercial conveyance of plastic concrete for any purpose whatsoever.*

The impossible character of Smith's proposal is shown by the first claim of his patent, No. 122,498, which reads:

> "1. The process of laying concrete pavements by *flowing the liquid* material upon the bed of the street, substantially as described."

Counsel for the respondent has not only volunteered his own fancy that the pipe for supplying air pressure to the upper part of the Smith chamber acts also as a velocity jet at the bottom, but he has contributed as equally original and fanciful idea as to why McMichael supplied the velocity jet at the point of emergence from the chamber into the conduit. In his last hour reply memorandum counsel for respondent says on page 10:

> "McMichael had to show in his patent both air pressure on top and at the outlet, because of the U-trap 24 in the discharge pipe. McMichael never built a machine with such a U-trap because it would never have worked. (R. 422.)"

Mr. Kirkland, the chief engineer of the plaintiff, the Concrete Mixing & Conveying Company ever since 1913, testified however:

"Q. In your so-called commercial machine as shown either in Exhibit 16 or 17-a or 17-B here you have this—you have this '24' (the U-bend) that appears in the McMichael patent.

"A. We occasionally use that when a machine in sunk in a pit.

* * * * * * * * *

"When in the use of a vertical McMichael machine which is quite high, it is difficult to raise the concrete up to the top of it and dump it into the machine, we dig a pit and sink the machine down into so that the top of the machine will come at a convenient height for dumping the materials into it. In that case have to have the 'U' bend to carry the discharge out of the pit and on through to its destination. The 'U' bend is still used under these circumstances." (R. pp. 121-2.)

There was no attempt to refute this testimony of Mr. Kirkland, the chief engineer in charge of all of the plaintiff's operations under the McMichael patent, and who was better qualified than anyone else to testify relative to all of the forms in which the McMichael invention has been used and applied. The U-bend "24" of the McMichael patent drawing is sometimes used and is sometimes not used. McMichael's velocity jet is *always* used. *No one has ever been able commercially to effect the pneumatic conveyance of concrete without it.*

The statement that "Hackley uses no air on top of his concrete" is refuted by the very drawing referred to, on page 2 of respondent's brief. Compressed air from the inlets 2, 3 and 4, behind the mass, shoot up and establish an equal pressure in the top of the vessel *the instant they are opened.* Even the nozzle 1 at the outlet will do this, because

of the resistance of the concrete ahead of it filling the relatively small discharge pipe, and the lack of resistance behind it, except for the feeble gravity of the concrete in the vessel. The colored zones in this drawing are, of course, *pure imagination* by counsel and not supported by any evidence.

The statement that the "U-shaped bend" shown in the patent was never used, is also completely answered by the fact that the defendants-petitioners in the Powers-Kennedy case use such a bend. This will be shown by the photograph of their apparatus (Exhibit 3) page 292 of that record, and by the further fact that they use in their conveying conduit, "as high as fourteen 90° bends" (R. P-K 203) and "had no trouble at all" (Id.), as their managing officer, Mr. Kennedy, testifies.

Respectfully submitted,

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